REMARKS

By way of summary, the Examiner issued an Office Action on May 31, 2006. Applicant timely responded to the Office Action by filing an Amendment on November 29, 2006. This Amendment was recorded in the PAIR system. Thereafter, a personal interview was conducted on December 12, 2006 between the Examiner and the Applicant. In adopting the Examiner's suggestions from the interview, Applicant enters this Supplemental Amendment. Herein Applicant has further amended Claims 1, 44 and 45. Applicant has added new Claims 62-65. Support for the weight percent ratio recited in Claim 1 may be found at page 8, lines 1 -2 of the specification. The weight ratio recited in Claim 63 was incorporated from page 15, lines 12-13 of the specification. Applicant has canceled Claims 5-6, 10-27, and 39. Therefore, Claims 1-4, 7-9, 28-38 and 40-65 are presented herein for further consideration.

Amendment to the Specification

As noted above, Applicant herein amends the paragraph beginning at page 7, line 19 of the specification. Such amendment is made to clarify that the flexible polyol is between about 5 wt % and about 20 wt %, based on the total weight of the rigid and flexible polyols being 100 wt %. Applicant believes that the original statement in the specification could only be interpreted by a skilled artisan as what the amendment recites. Thus, no new matter has been added.

Amendment of Claims 1, 44, and 45 and Presentation of New Claim 62

Applicant is amending independent Claims 1, 44 and 45 to recite the respective hydroxyl numbers of the first and second polyols recited in the claims. Furthermore, Applicant further presented new Claim 62. These amendments and the new Claim 62 is supported by EXAMPLES 1-4 on pages 16-17 and 19 of the specification:

EXAMPLE 1 describes that a polymer composition was prepared with "rigid polyol (MULTRANOL 4035, Bayer)" and "rubbery polyol (ARCOL LG-56, Bayer)." EXAMPLES 2 -3 describe that polymer compositions were prepared with "rigid polyol (Bayer 4035)" and "flexible polyol (Bayer 3900)." EXAMPLE 4 also describes that a polymer composition is prepared with "rigid polyol (MULTRANOL 4035)" and "flexible polyol (MULTRANOL 3900)." EXAMPLES

2-4 thus refer to Bayer's MULTRANOL 4035 as the rigid polyol and Bayer's MULTRANOL 3900 as the flexible polyol.

Each of the aforementioned polyols is manufactured and sold by Bayer MaterialScience. Exhibit A attached to this *Supplemental Response* is a Bayer MaterialScience product index of the polyurethane raw materials, including polyols and isocyanates, which it manufactures and sells. Exhibit A describes properties of each of the aforementioned polyols.

As indicated above, the rigid polyol described in each of the Examples is Bayer's MULTRANOL 4035. On page 5 of Exhibit A, the product catalog describes that MULTRANOL 4035 has a typical hydroxyl number of 380 mg KOH/g. MULTRANOL 4035 is further described in Exhibit B, which is the Product Specification of MULTRANOL 4035. Specifically, Exhibit B describes that the polyol has a hydroxyl number ranging from 365-395 mg KOH/g.

Two flexible polyols are described in the specification: Bayer's ARCOL LG-56 and MULTRANOL 3900. In Exhibit A, these flexible polyols are further described. On page 6 of Exhibit A, ARCOL LG-56 is described as having a typical hydroxyl number of 57 mg KOH/g. ARCOL LG-56 is further described in its product specification labeled as Exhibit C. Specifically the product specification states that ARCOL LG-56 has a hydroxyl number ranging from 56.2 to 59.0 mg KOH/g. Thus, ARCOL LG-56 has a hydroxyl number less than the hydroxyl number of MULTRANOL 4035.

For the other flexible polyol, MULTRANOL 3900 is also described in Exhibit A. On page 6 and under the subheading "Flexible Polyols", MULTRANOL 3900 is described as having a typical hydroxyl number of 35 mg KOH/g. MULTRANOL 3900 is further described in its product specification labeled as Exhibit D. Specifically the product specification states that MULTRANOL 3900 has a hydroxyl number ranging from 33.8 to 37.2 mg KOH/g. Thus, MULTRANOL 3900 has a hydroxyl number less than the hydroxyl number of MULTRANOL 4035.

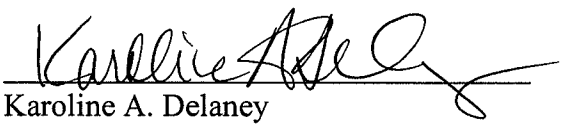
Based on these disclosures and as indicated by the Examiner during the personal interview with the Applicant on December 12, 2006, Applicant believes that the amendment to Claims 1, 44, 45, and the presentation of new Claim 62 does not introduce new matter and is supported by the specification.

The undersigned has made a good faith effort to place the claims in condition for immediate allowance. Nevertheless, if any undeveloped issues remain or if any issues require clarification, the Examiner is respectfully requested to call Applicant's attorney in order to resolve such issue promptly.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 23 January 2007 By: 

Karoline A. Delaney
Registration No. 44,058
Attorney of Record
Customer No. 20,995
(949) 760-0404

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Exhibit A

Bayer MaterialScience

Product Index

Polyurethane Raw Materials, Prepolymers and Systems

Products and Properties

Bayer MaterialScience raw materials, prepolymers and polyurethane systems used for the production of a wide range of polyurethane products.

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A Wealth of Raw Materials and Systems for Your Polyurethane Products

Bayer MaterialScience LLC offers a wealth of high-quality polyurethane raw materials - isocyanates, polyols and prepolymers - and systems to formulate your polyurethane systems. For the processing and performance needs of almost any application, Bayer offers one of the broadest product lines in the polyurethane industry. Customers in the appliance, automotive, construction, footwear, furniture and recreation industries, to name a few, use these raw materials in their formulations.

The products ultimately produced with these raw materials may vary from solid polymers to rigid and flexible foams. Our goal is to provide our customers with the right polyurethane raw materials to meet desired product properties in any application:

Elastomers
Coatings
Adhesives
Foams
Prepolymer resins

We service the NAFTA region for Bayer MaterialScience's global polyurethanes business. Bayer produces polyurethanes at 26 sites around the world - in Europe, North, Central and South America, Africa and Asia. With this worldwide manufacturing base, customers can have the products they want everywhere they need them.

Technical service is a key strength. We have experienced polyurethane chemists, technicians and technical centers in every major region of the world.

For the manufacturer of polyurethane products, Bayer also offers a range of polyurethane processing equipment, supplied by our Hennecke Machinery Group.

For additional assistance in selecting the right raw materials from this index, to request a data sheet about any of these products, or to place an order, please contact us at 412-777-2000 or visit us on the web at www.bayer.materialsciencenafta.com.

Table 1

Monomeric Diisocyanates

Product	Chemical Description	Commercial Form	NCO Wt. %*	Visc 25°C*	Equiv. Wt.*	Typical Funct.	End-Use Applications	Unique Properties
Desmodur W	Dicyclohexylmethane-4,4'-Diisocyanate (MDI)	Clear colorless liquid	31.8	30	132	2	Coatings requiring elastomeric properties High-performance light stable elastomers	Light Stable Excellent hydrolysis resistance Excellent mechanical toughness
Mondur ML	Mixture of 4,4'- and 2,4'-Diphenylmethane Diisocyanate (MDI)	Light yellow liquid	33.6	10	125	2	Synthetic surfaces Binders Elastomers Coatings	Liquid monomeric isocyanate Low vapor pressure Good low-temperature properties
Mondur M	4-4'-Diphenylmethane Diisocyanate (MDI)	Fused flaked or molten	33.6	Solid	125	2	Elastomers TPU's Adhesives Coatings Fibers	High performance PUR Special storage temp. required
Mondur TDS	100% 2,4-Toluene Diisocyanate (TDI)	Clear to light yellow liquid	48	3	87.5	2	Elastomers Coatings Adhesives Foams	Production of low free TDI monomer prepolymers
Mondur TD-80	80/20 mixture of 2,4- and 2,6-Toulene Diisocyanate (TDI)	Clear to light yellow liquid	48	5	87.5	2	Elastomers Coatings Adhesives Foams	Excellent flowability Low temp. stability Largest commercial TDI version
Mondur TD-65	65/35 mixture of 2,4 and 2,6-Toluene Diisocyanate (TDI)	Clear to light yellow liquid	48	3	87.5	2	Elastomers Foams	Unique isomer ratio
Special TDI Blends	Bayer can also produce blends of its TDI products to offer custom isomer ratios. Contact our Isocyanate Product Management Group for more information at 412-777-2000.							
Special Blends TDI and MDI	Bayer can also produce blends of its TDI and MDI isocyanates to meet customer needs. Contact our Isocyanate Product Management Group for more information at 412-777-2000.							
Special MDI Blends	Bayer can also produce blends of its MDI products to offer custom products. Contact our Isocyanate Product Management Group for more information at 412-777-2000.							

* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

Table 2

Modified Isocyanates and Polyisocyanates

Product	Chemical Description	Commercial Form	NCO Wt. %*	Visc. 25°C*	Equiv. Wt.*	Typical Funct.	End-Use Applications	Unique Properties
Modified Isocyanates								
Mondur 501	Modified MDI	Light yellow liquid	19.0	1,100	221	2	Shoe soles Elastomers Foams	Short demold times Liquid at ambient temperature
Mondur 1437	Modified MDI	Clear light yellow liquid	10.0	2,500	420	2	Binders Moisture cure composties	Low viscosity Cure rate adjustable
Mondur 1453	Modified MDI	Clear to light yellow liquid	16.5	600	254	2	Spray polyurea	Low viscosity liquid elastomers systems
Mondur 1455	Modified MDI	Clear to light yellow liquid	23.5	550	179	2	Two-component adhesives Binders Spray elastomers	Low temperature stability Low reactivity level
Mondur PF	Modified MDI	Light yellow liquid	22.9	650	183	2	Integral skin Semi-flexible foams High property sealants and coatings Shoe soles	Liquid at ambient temperature
Mondur PC	Modified MDI	Clear to light yellow liquid	25.8	145	163	2.1	Integral skin foams, Microcellular foams, Elastomers, High-property sealants and coatings	Liquid at ambient temperatures Low viscosity High performance
Mondur CD	Uretonimine modified MDI liquid	Clear to yellow	29.5	50	143	2.2	High-performance solid and microcellular elastomers	Low viscosity High NCO content
Allophanates								
Mondur MA-2300	Allophanate-modified MDI	Light yellow liquid	23.0	450	183	2.0	Truck bed liners Adhesives Carpet backing	Low freeze point
Mondur MA-2600	Allophanate-modified MDI	Light yellow liquid	26.0	100	162	2.0	High-performance sealants and coatings	High monomer Low freeze point
Mondur MA-2601	Isocyanate blend	Brown liquid	29.0	60	145	2.2	Microcellular foams Low freeze point	High NCO
Mondur MA-2603	Allophanate-modified MDI Polyether Prepolymer	Light yellow viscous liquid	16.0	1050	263	2.0	Spray elastomers Adhesives	Low freeze point
Mondur MA-2800	Allophanate-modified MDI	Light yellow liquid	28.0	45	150	2.0	High-property solid and microcellular elastomers	High monomers
Mondur MA-2902	Allophanate-modified MDI	Light yellow liquid	29.0	40	145	2.0	MDI monomer replacement Coatings	High monomer
Mondur MA-2903	Allophanate-modified MDI Polyether Prepolymer	Light yellow liquid	19	400	221	2.0	Elastomer, internal skin semiflexible foams Shoe soles	Low viscosity
Mondur MA 2904	Allophanate-modified MDI Polyether Prepolymer	Light yellow liquid	12.0	1800	350	2.0	Spray elastomers	Low freeze point

1. Additional allophanates products are available. Contact our Isocyanate Product Management Group for more information at 412-777-2000.
* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

Table 2 (continued)
Modified Isocyanates and Polyisocyanates

Product	Chemical Description	Commercial Form	NCO Wt. %*	Visc. 25°C*	Equiv. Wt.*	Typical Funct.	End-Use Applications	Unique Properties
Polymeric MDI's								
Mondur 1508	2,4 rich Polymeric MDI	Brown/ amber liquid	32.0	40	131	2.5	Flexible foams Elastomers	High monomer Low viscosity
Mondur 1469	Modified pMDI	Brown/ amber liquid	27.4	400	153	2.4	Adhesives Carpet backing	Low-temperature stability No BHT
Mondur 486	Modified pMDI	Brown/ amber liquid	27.0	300	155	2.4	Adhesives Coatings, Foams Elastomers, Carpetbacking, Synthetic surfaces	Low vapor pressure Good flowability
Mondur 448	Modified pMDI	Brown/ amber liquid	27.7	140	152	2.2	Adhesives Coatings, Foams Elastomers,Carpetbacking, Synthetic surfaces, Binders	Low vapor pressure Good flowability
Mondur MRS	2,4 rich Polymeric MDI	Brown/ amber liquid	31.5	200	131	2.6	Semi-rigid foams Adhesives Rigid foams, Carpetbacking sealants	Low vapor pressure
Mondur MR	Polymeric MDI	Brown/ amber liquid	31.5	200	133	2.8	Semi-rigid foams, Adhesives, HR moldings, Slabstock, Carpet underlay, Rigid foams, Encapsulants	Multi-purpose
Mondur MR Light	Polymeric MDI	Brown/ Light amber liquid	31.5	200	133	2.8	Semi-rigid foams, Adhesives, HR moldings, Slabstock, Carpet underlay, Rigid foams, Encapsulants	Multi-purpose
Mondur 489	Polymeric MDI	Brown/ amber liquid	31.5	700	131	3.0	Rigid Polyetser/Polyether foams, Adhesives	Low vapor pressure
Mondur 582	2,4 rich Polymeric MDI	Brown/ amber liquid	32.0	70	131	2.5	Semi-Rigid foams Adhesives	Low vapor pressure Low viscosity
Mondur MRS-5	2,4 rich Polymeric MDI	Brown/ amber liquid	32.3	55	130	2.4	Semi-Rigid foams, Coatings Elastomers, Adhesives Rigid foams, Encapsulants, Synthetic surfaces	Multi-purpose
Mondur MR-5	Polymeric MDI	Brown/ amber liquid	32.5	50	129	2.4	High-property, Specialty adhesives	Low viscosity High monomer
Mondur MRS-4	2,4 rich Polymeric MDI	Brown/ amber liquid	32.5	40	129	2.4	Semi-Rigid foams, Coatings, Elastomers, Adhesives, Rigid foams, Encapsulants, Synthetic surfaces Low vapor pressure	Low viscosity Good flowability Excellent low-temperature stability
Mondur MRS-20	2,4 rich Polymeric MDI	Amber liquid	32.9	30	128	2.3	Flexible foams Elastomers, Encapsulants	Low functionality Low vapor pressure Good flowability
Mondur MRS-2	2,4 rich Polymeric MDI	Amber liquid	33.0	25	127	2.2	Flexible foams Elastomers, Encapsulants, Adhesives	Low functionality Low vapor pressure Good flowability

1. Additional products are available. Contact our Isocyanate Product Management Group for more information at 412-777-2000.
* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

Table 3

Isocyanates for Encapsulation Systems

Product	Chemical Description	Commercial Form	NCO Wt. %*	Visc. 25°C*	Equiv. Wt.*	Funct.	Typical End-Use Applications	Unique Properties
Baytec ENC 88	Polymeric MDI	Brown/ amber liquid	31.5	200	133	2.8	Potting/ encapsulants	Multi-purpose
Baytec ENC 5003	2,4 rich polymeric MDI	Amber liquid	32.9	26	127	2.2	Encapsulants	Low viscosity Low vapor pressure
Baytec ENC 5006	Quasi-prepolymer	Amber liquid	25.6	860	164	2.2	Potting/ encapsulants	Mix compatability

* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

Polyether Polyols

Table 4

Product	Functionality*	Typical OH No. mg KOH/g*	Typical Molecular Weight	Typical Viscosity 25°C mPa.s*	EO Tip
Amine-Based Polyols					
Multranol 4050	4	630	356	18,000	No
Multranol 4063	4	460	488	18,000	No
Multranol 8114	4	395	568	8,800	No
Multranol 8120	4	360	623	25,000	No
Multranol 9138	3	700	240	785	No
Multranol 9144	3	150	1,122	250	No
Multranol 9166	4	395	568	10,000	No
Multranol 9170	3	350	481	275	No
Multranol 9181	4	770	291	36,000	No
Sucrose-Based Polyols					
Multranol 4030	5.8	380	856	12,500	No
Multranol 4034	5.2	470	624	33,000	No
Multranol 4035	3	380	438	600	No
Multranol 9171	6.2	340	1,020	9,000	No
Multranol 9196	5.5	470	660	28,000	No
Specialty Polyols for Coatings, Adhesives, Sealants & Elastomers (CASE)					
Arcol LG-650	3	650	260	820	No
Arcol LHT-112	3	112	1,500	280	No
Arcol LHT-240	3	238	707	250	No
Arcol PPG-425	2	263	426	70	No
Arcol PPG-725	2	147	763	125	No
Arcol PPG-1000	2	111	1,000	164	No
Multranol 4011	3	550	306	1,650	No
Multranol 4012	3	370	455	650	No
Multranol 8116	3	120	1,400	285	Yes
Multranol 9133	3	1,050	160	1,350	No
Multranol 9158	3	470	356	470	No
Multranol 9185	6	100	3,366	670	Yes
Multranol 9198	2	515	218	55	No
Softcel U-1000	3	168	1,000	220	No

* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

Table 4 (continued)

Product	Functionality*	Typical OH No. mg KOH/g*	Typical Molecular Weight*	Typical Viscosity 25°C mPa.s*	EO Tip
Low-Monol Polyols					
Acclaim 703	3	238	700	265	No
Acclaim 2200	2	56	2,000	370	No
Acclaim 2220N	2	50	2,250	340	Yes
Acclaim 3205	2	35	3,000	637	No
Acclaim 3300N	3	57.6	3,000	524	No
Acclaim 4200	2	28	4,000	968	No
Acclaim 4220N	2	28	4,000	860	Yes
Acclaim 6300	3	28	6,000	1,470	No
Acclaim 6320N	3	28	6,000	1,725	Yes
Acclaim 8200	2	14	8,000	3,000	No
Flexible Polyols					
Arcol 11-34	3	35	4,800	840	Yes
Arcol E-351	2	40	2,800	490	Yes
Arcol E-644	6	28	12,000	1,700	Yes
Arcol F-3022	3	56	3,000	480	No
Arcol F-3222	3	52.6	3,200	520	No
Arcol LG-56	3	57	3,000	480	No
Arcol LHT-42	3	41	4,200	700	No
Arcol PPG-2000	2	56	2,000	370	No
Arcol PPG-3025	2	37	3,000	570	No
Arcol PPG-4000	2	28	4,000	980	No
Hyperlite E-824	3	35.7	4,700	830	Yes
Hyperlite II E-863	3.8	31.5	6,870	1,100	Yes
Multranol 3900	3	35	4,800	840	Yes
Multranol 3901	3	28	6,000	1,120	Yes
Multranol 9111	2	28	4,000	820	Yes
Multranol 9139	3	28	6,000	1,150	Yes
Multranol 9190	2	28	4,000	830	Yes
Multranol 9199	3	37	4,525	1,100	Yes
Softcel VE-1000	2.5	94	1,500	375	Yes
Ultracel 3000	4.0	30	7,500	1,700	Yes

* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

Table 4 (continued)

Product	Functionality*	Typical OH No. mg KOH/g*	Typical Molecular Weight	Typical Viscosity 25°C mPa• s*	EO Tip
Polymer Polyols					
Arcol 24-32	2	32	NA	1,220	Yes
Arcol 31-28	3	28	NA	3,000	Yes
Arcol 34-28	3	27	NA	2,240	Yes
Arcol 34-35	3	47	NA	1,260	No
Arcol E-900	3	25.4	NA	2,600	Yes
Arcol HS-100	3	28.2	NA	3,600	No
Hyperlite II E-851	3.8	18.5	NA	6,000	Yes
Hyperlite E-852	3	20.2	NA	5,200	Yes
Hyperlite E-889	3	20.2	NA	5,000	Yes
Multranol 8151	3	28	NA	3,600	Yes
Polyols for Encapsulation Systems					
Baytec ENC-30P	3	550	306	1,650	No
Baytec ENC-55P	3	370	45	650	No
Baytec ENC-140P	3	222	NA	1,350	No
Baytec ENC-340P	3	56	3,000	500	No
Baytec ENC-390P	2	35	4,800	840	Yes
Actaclear Carrier Fluids for Fuel Additives					
Actaclear ND21A	1	35	1,600	90	No
Actaclear ND17A	1	45	1,250	125	No
Actaclear 2400	1	35	1,600	420	No

Contact Bayer for more detailed information about Actaclear carrier fluids.

Polyester Polyols

Table 5

Product	Composition	Typical Molecular Weight	Typical OH No. mg KOH/g*	Water %*	Viscosity 73°C mPa• s*	Acid No. mg KOW/g*
Saturated, Hydroxyl-Terminated Polyesters						
Desmophen 2501	Ethylene Adipate Diol	759	150	0.10 max	—	1.5 max
Desmophen 2500	Ethylene Adipate Diol	1,000	112	0.10 max	—	1.5 max
Desmophen 1800	Branched Diethylene Adipate	2,800	60	0.10 max	900-1,600	1.2 max
Desmophen 2000 Diol	Ethylene Adipate	2,000	56	0.10 max	540-750	1.0 max
Desmophen 2001 KS 2001 K[2]	Ethylene Adipate Diol	2,000	56	0.10 max	540-770	1.0 max
Desmophen 2502	Butylene Adipate Diol	2,000	56	0.05 max	580-790	0.8 max
Desmophen 1700	Diethylene Adipate Diol	2,550	44	0.10 max	670-900	1.5 max
Desmophen 2505	Butylene Adipate	4,000	28	0.05 max	2,400-5,200	0.8 max
Desmophen P100B	Butylene Adipate Diol	1,000	109-115	0.05 max	—	1.5 max
Desmophen 2601	Diethylene Glycol/ Pthalic Anhydride	330	320-360	0.10 max	—	1.5 max
Desmophen 2602	Diethylene Glycol/ Pthalic Anhydride	470	230-250	0.15 max	—	2.0-3.0 max
Desmophen PE225B	Butylene Adipate Diol	2,250	47.5-52.5	0.05 max	—	0.5 max
Desmophen 2002H	Ethylene/Butylene Adipate Diol	2,000	52-55	0.10 max	—	0.5 max
Desmophen 2003E	Diethylene/Ethylene Adipate Diol	2,000	52-58	0.05 max	—	0.5-1.0 max
Desmophen PE65B	Butanediol Adipate/	650	169-177	0.05 max	—	0.5 max
Rucoflex S-1021-70	Butanediol Adipate/ Isophthalate	1,600	67-73	0.05 max	—	0.6 max
Rucoflex S-1043-46	Ethylene Diethylene Adipate Diol	2,440	43-47	0.05 max	—	0.6 max
Rucoflex S-1043-55	Ethylene Diethylene Adipate Diol	2,000	52-58	0.05 max	—	0.6 max

Note: polyesters listed are 100% solids.
* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.
[2]Uncatalyzed

Table 6

MDI Ethers

Product	Chemical Description	Elastomer Hardness (Shore)	% NCO Cont.*	100°C Visc. mPa·s*	25°C Visc. mPa·s*	Typical End-Use Applications	Unique Properties
Polytetramethylene Glycol							
Baytec ME-050	Isocyanate-terminated PTMEG Prepolymer	85A	5.9	740	—	Agriculture Hydrocyclones Wheels	Hydrolysis and bacteria resistance Excellent dynamic properties Tires High resilience
Baytec ME-120	Isocyanate-terminated PTMEG Prepolymer	60A-50D	12	—	4,060	High performance Elastomers Skate wheels	Low room termperature Viscosity
Baytec ME-230	Isocyanate-terminated PTMEG Prepolymer	—	23.0	183	300	One-shot elastomers	High performance High resilience elastomers
Polypropylene Glycol							
Baytec MP-020	Isocyanate-terminated Polyether Prepolymers	—	2.6	—	55,000	Binders Ultrasoft elastomers	Low NCO
Baytec MP-030	Isocyanate-terminated Polyether Prepolymers	—	3.7	—	8,000	Binders Ultrasoft elastomers	Low viscosity
Baytec MP-080	Isocyanate-terminated Polyether Prepolymer	—	8.0	—	2,500	Binders	Abrasion resistance
Baytec MP-090	Isocyanate-terminated Polyether Prepolymer	85A	9.0	115	15,00	Pipe lining Conveyor rolls	Hydrolysis and bacteria resistance Inexpensive
Baytec MP-101	Isocyanate-terminated Polyether Prepolymer	—	10.0	100	2,500	Moisture cure binders	Processing ease Low viscosity
Baytec MP-120	Isocyanate-terminated Polyether Prepolymer	—	12	100	2,000	Binders	Processing ease Low viscosity
Baytec MP-160	Isocyanate-terminated Polyether Prepolymer	—	16.5	—	600	Polyurea spray elastomer systems	Low viscosity Lower reactivity
Baytec MP-210	Modified MDI	—	21.6	—	330	Adhesives Binders Spray elastomers Solid elastomers	Low viscosity
Baytec MP-230	Modified MDI	—	23.6	—	550	Adhesives Binders Spray elastomers	Low-temperature stability
Baytec MP-190	Isocyanate-terminated Polyether Prepolymer	—	19.0	—	600	Adhesives Spray elastomers	Low-temperature stability
Baytec MP-250	Isocyanate-terminated Polyether Prepolymer	—	25.0	—	500	Adhesives Water-blown foams	Low-temperature stability

When extended with 1,4 Butanediol

* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

Polyurethane Prepolymers

Table 6 (continued)

MDI Esters

Product	Chemical Description	Elastomer Hardness (Shore)	% NCO Cont.*	100°C Visc. mPa·s*	25°C Visc. mPa·s*	Typical End-Use Applications	Unique Properties
Baytec MS-041	Isocyanate-terminated Polyester Prepolymers	72A	4.5	1,100	—	Printing rolls Wiper Blades Seals	Low durometers without plasticizers Tear strength
Baytec MS-051	Isocyanate-terminated Polyester Prepolymer	80A	5.0	800	—	Rolls Wheels Bushings	Solvent resistance Tear Strength Good resilience
Baytec MS-052	Isocyanate-terminated Polyester Prepolymer	82A	5.1	1,750	—	FDA applications	Butylene adipate base
Baytec MS-080	Isocyanate-terminated Polyester Prepolymer	90A	8.15	590	—	FDA applications Tear strength	Abrasion resistance Butylene Adipate base
Baytec MS-081	Isocyanate-terminated Polyester Prepolymer	90A	7.9	450	—	Wheels Rolls Seals	Dynamic performance Low compresion set Oil/solvent resistance
Baytec MS-090	Isocyanate-terminated Polyester Prepolymer	93A	9	350	—	Water parts Gears Chopper cots	Cut/tear strength Abrasion resistance Low resilience
Baytec MS-092	Isocyanate-terminated Polyester Prepolymer	93A	9.2	365	—	Chopper cots Hydrocyclones Wheels Rollers	Cut/tear strength Low compression set
Baytec MS-242	Isocyanate-terminated Polyester Prepolymer	85A	6.6	600	—	Wheels Sheet goods Die-cut blankets Gaskets	Abrasion resistance Tear strength

When extended with 1,4 Butanediol*

* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

Polyurethane Prepolymers

Table 7

Aliphatic Prepolymers

Product	Chemical Description	% NCO Content*	Viscosity 25°C mPa·s*	Typical End-Use Applications	Unique Properties
Baytec WE-180	Isocyanate-terminated PTMEG Prepolymer based on HMDI	18	795	Soft elastomers Energy absorbing elastomers	Clear Light stable Room temperature processable
Baytec WP-260	Isocyanate-terminated PPG Polyether Prepolymer based on HMDI	26	280	Tooling resins Pottings and encapsulants Decorative applications	Clear Light stable High hardness capabilities Room temperature processable

* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

Table 8

Multiple-Component Systems

Product	Chemical Description	Components	Mixing Ratio	Elastomer Hardness (Shore)	Viscosity 25°C mPa• s*	Specific Gravity*	Typical End-Use Applications	Unique Properties
Baytec GSV85A	MDI Ester	Isocyanate Component A	47-121	60-96A	1,100	1.20	Rollers Wear parts	Good compression set Tear resistance
		Resin Compound B	95-80		semi-solid	1.17		
		1,4 Butanediol	5-20		72	1.02		
Baytec 352P	Polyester	Resin	1.05	75-90A	solid @ 25°C 1620 @ 73°C	1.112 @ 73°C	Mining screens	Abrasion resistance
		Mondur PC or 1,4 Butanediol	Variable Differs	Variable	Variable			Durability
Baytec RTC-V85A	4-component system	Isocyanate Component A	variable	72-93A	2,500	1.09	Roller covers for paper, textile, and steel industries. Belt rollers.	Fast-reacting
		Resin Component B	—	—	1,460	1.04		
		Resin Component C	—	—	2,150	1.04		
		Resin Component D	—	—	1,350	1.04		
Baytec RTC-092A		Isocyanate Component A	—	92A	2,500	1.09	Roller covers for paper, textile, and steel industries. Belt rollers.	Fast-reacting
		Resin Component B			1,500	1.04		
Baytec SPR-066A		Isocyanate Component A	75	66A	2,300	1.09	Liners for trucks, tanks pipes Protective layer for foam, wood and metal surfaces	UV-stable Abrasion resistance
		Resin Component B	100	—	2,100	1.04		
Baytec SPR-085A		Isocyanate Component A	100	85A	2,500	1.09	Liners for trucks, tanks pipes Protective layer for foam, wood and metal surfaces	Abrasion resistance
		Resin Component B	100		1,500	1.04		

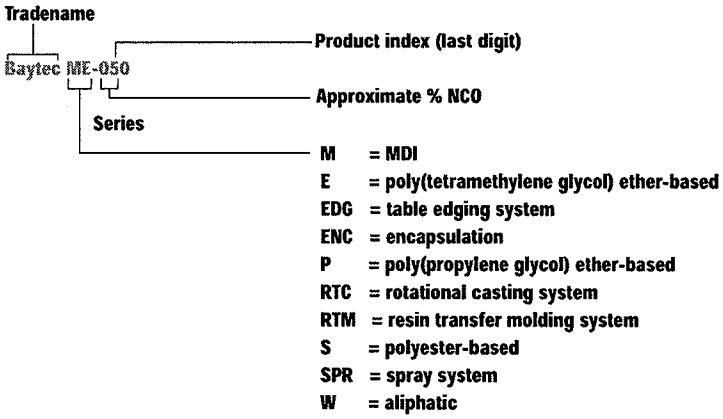
Table 8 (Continued)

Multiple-Component Systems

Product	Chemical Description	Components	Mixing Ratio	Elastomer Hardness (Shore)	Viscosity 25°C mPa• s*	Specific Gravity*	Typical End-Use Applications	Unique Properties
Baytec SPR-092A		Isocyanate Component A	100	92A	2,500	1.09	Protective layer or foam; wood and metal surfaces	UV-stable Corrosion, weather and abrasion resistance
		Resin Component B	100	—	1,500	1.04		
Baytec SPR-075A		Isocyanate Component A	75	75A	2,500	1.09	Protective layer for foam urethane skins for vinyl replacement	Plasticizer free, Abrasion resistance
		Resin Component B	100		1,800	1.04		
Baytec SPR-186A		Isocyanate Component A	65	86A	1,800	1.09	Protective layer for foam urethane skins for vinyl replacement	Plasticizer free, Abrasion resistance
		Resin Component B	100		1,800	1.04		
Baytec SPR-156D		Isocyanate Component A	109	56D	600	1.14	Semi rigid parts, barrier coat for composite parts	UV-stable, Prevents glass "read through" in composites
		Resin Component B	100		1,500	1.04		

* These items are provided as general information only. They are approximate values and are not considered part of the product specifications.

Nomenclature for Polyurethane Prepolymers



The nomenclature for Baytec MDI prepolymers consists of the series type, designated by two letters (see series key above), followed by three digits. The first two digits designate approximate % NCO. For example, Baytec ME-050 is an MDI poly(tetramethylene glycol) ether-based prepolymer with approximately 5% NCO. The last digit is the product index, which is used to distinguish different products within a given series with similar % NCO values; e.g., Baytec MP-100 and Baytec MP-101 both have NCO values of approximately 10.0%. Baytec MS-242 is an exception to this rule with its NCO value of 6.7%. On the multiple-component system table (Table 8), the digits refer to the hardness of the fully reacted product on either the Shore A or Shore D scales.

Health and Safety Information

Basic Safety

Protect workers from the most common routes of chemical overexposure:

- Breathing vapors or mists (inhalation)
- Eye contact
- Skin contact
- Swallowing (ingestion)

Protect yourself from chemical overexposure:

- Wear long sleeves, chemical resistant gloves, and eye protection when working with or near chemicals.
- Never bring food, drinks, or tobacco products into chemical work, handling, storage, or laboratory areas.
- Clean up spills immediately.
- Avoid contamination of isocyanates with water. Never re-seal an isocyanate container that has been contaminated with water. Pressure build-up could rupture the container.
- Have medical clearance before beginning work in any chemical environment.

What Your Company Should Do:

- Provide eyewash stations and showers near all potential exposure sites.
- Provide adequate exhaust ventilation at all potential exposure sites.
- Keep current material Safety Data Sheets on file for all chemicals in the workplace.
- Provide thorough training in safety procedures and equipment.

Of course, the No.1 rule is, don't take chances. If you're not sure that something is safe, don't use it until you consult the MSDS or one of the other publications referenced on page 17.

Appropriate literature has been assembled that provides information concerning the health and safety precautions that must be observed when handling Bayer chemicals. Before working with these products, you must read and become familiar with the available information concerning their hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., Material Safety Data Sheets (MSDS), product labels and online at the Bayer Product Stewardship website **www.BayCareOnline.com**.com. Visit the website, contact your local Bayer representative or contact the product safety representative in Pittsburgh, PA.

Material Safety Data Sheets are supplied with all Bayer raw materials and list specific safety recommendations. These must be read thoroughly before handling any chemical and kept on file for ready reference.

Workers and supervisors must be trained in the safe use and handling of chemicals as well as in the emergency and first aid procedures listed in the MSDS form.

Regulatory Compliance Information

Some of the end uses of the products described in this brochure must comply with applicable regulations such as FDA, USDA, NSF, CPSc. If you have any questions on the regulatory status of these products, contact your Bayer representative or the Regulatory Affairs Department.

For materials mentioned that are not Bayer MaterialScience products, appropriate industrial hygiene and other safety precautions recommended by the manufacturer should be followed.

Additional data on medical recommendations, spill clean-up procedures, and disposal of MDI-based isocyanates can be found in the following publications:

- *MDI-Based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal,* Alliance for the Polyurethanes Industry, Suite 800, 1300 Wilson Boulevard, Arlington, VA 22209, Phone: 703-253-0653
- *Using Flexible Polyurethane Foams Safely,* Alliance for the Polyurethanes Industry, Suite 800, 1300 Wilson Boulevard, Arlington, VA 22209, Phone: 703-253-0653
- *Guidelines for the Selection of Chemical Protective Clothing,* American Conference of Governmental Industrial Hygienists, 6500 Glenway Avenue, Building D-7, Cincinnati, OH 45211-4438
- *Hyperactivity and Other Health Effects of Diisocyanates: Guidelines for Medical Personnel*, (Technical Bulletin AX-150), Alliance for the Polyurethanes Industry, Suite 800, 1300 Wilson Boulevard, Arlington, VA 22209, Phone: 703-253-0653
- *Guidelines for the Disposal of Empty Diisocyanate Containers,* Alliance for the Polyurethanes Industry, Suite 800, 1300 Wilson Boulevard, Arlington, VA 22209, Phone: 703-253-0653
- *Product Stewardship Reference Manual,* Bayer MaterialScience LLC, 100 Bayer Road, Pittsburgh, PA 15205-9741
- *PMDI User Guidelines for Chemical Protective Clothing Selection,* (Technical Bulletin AX-I78), Alliance for the Polyurethanes Industry, Suite 800 1300 Wilson Boulevard, Arlington, VA 22209, 703-253-0653
- *Toluene Diisocyanates Safe Handling and Storage Manual,* Bayer MaterialScience LLC, 100 Bayer Road, Pittsburgh, PA 15205-9741
- **www.BayCareOnline.com**, Bayer MaterialScience's Product Stewardship Website.

Bayer MaterialScience

Bayer MaterialScience LLC
100 Bayer Road
Pittsburgh, PA 15205-9741
412-777-2000

www.bayermaterialsciencenafta.com

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Exhibit B

Bayer MaterialScience

MULTRANOL® 4035

Polyether Polyol

CAS No. 9049-71-2

Product Code: **K114**

Product Information

Description

Multranol 4035 is a 440-molecular-weight sucrose-based polyether polyol. This low-viscosity polyol is used for reducing formulation viscosity. It is particularly well-suited for modifying systems where low viscosity, good mixing characteristics, and flowability are desirable. Applications include furniture seating. As with any product, use of Multranol 4035 polyol in a given application must be tested (including field testing, etc.) in advance by the user to determine suitability.

Product Specifications

Property	Value
Hydroxyl Number, mg KOH/g	365–395
Water, Wt. % (max)	0.10
Acid Number, mg KOH/g (max)	0.1
Viscosity at 25°C, mPa·s	500–700
Color, Gardner (max)	6

Typical Properties*

Property	Value
Appearance	Clear, amber viscous liquid
Specific Gravity at 25°C	1.05
Flash Point, PMCC, °C	157
Bulk Density at 25°C, lb/gal	8.85

Storage

Multranol 4035 polyol is slightly hygroscopic and may absorb water. Containers should be kept tightly closed and protected from contamination with moisture and foreign materials, which can adversely affect processing.

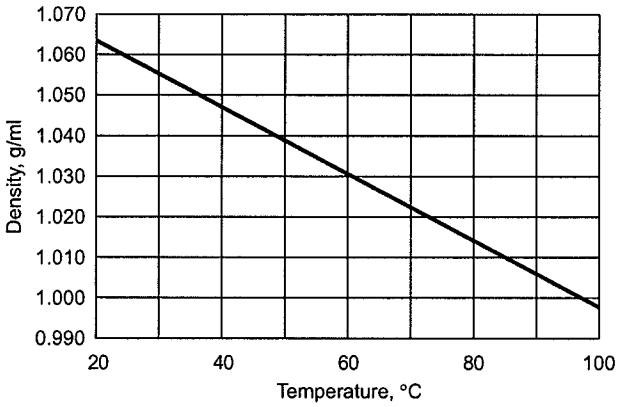
This polyol can become quite viscous at low temperatures. For ease of handling, storage temperatures between ambient room temperature and 49°C (120°F) are recommended.

Health and Safety Information

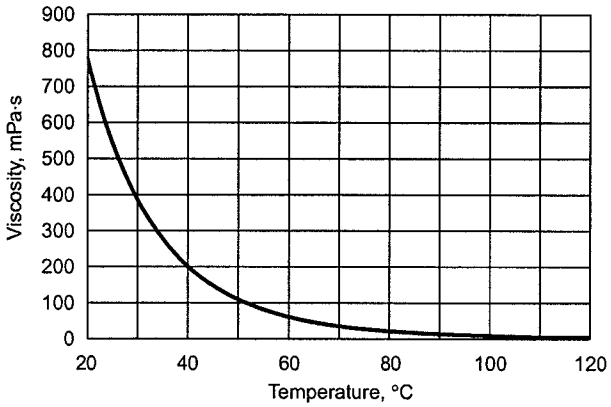
Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling Multranol 4035 polyol. Before working with this product, you must read and become familiar with the available information on its hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets and product labels. Consult your local Bayer MaterialScience representative or contact Bayer's Product Safety and Regulatory Affairs Department in Pittsburgh, Pa.

* *These items are provided as general information only. They are approximate values and are not part of the product specifications.*

Density vs. Temperature* for Multranol 4035 Polyol



Viscosity vs. Temperature* for Multranol 4035 Polyol



Data presented in this chart is derived from a single sample
And may vary from the typical properties information, which
Represents values derived by averaging data from various samples.

Note: The information contained in this bulletin is current as of January 1997. Please contact Bayer MaterialScience to determine whether this publication has been revised.

Bayer MaterialScience LLC

100 Bayer Road • Pittsburgh, PA 15205-9741 • Phone: 1-800-662-2927 • www.BayerMaterialScienceNAFTA.com

Sales Offices

17320 Redhill Avenue, Suite 175, Irvine, CA 92614-5660 • 1-949-833-2351 • Fax: 1-949-752-1306
1000 Route 9 North, Suite 103, Woodbridge, NJ 07095-1200 • 1-732-726-8988 • Fax: 1-732-726-1672
2401 Walton Boulevard, Auburn Hills, MI 48326-1957 • Phone: 1-248-475-7700 • Fax: 1-248-475-7701

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Exhibit C

Bayer MaterialScience

Product Information

ARCOL® LG-56

Polyether Polyol

CAS No. 25791-96-2
Product Code: KLLG56

Description

Arcol LG-56 polyether polyol is a 3,000-molecular-weight polypropylene oxide-based triol. The terminal end-groups are predominantly secondary hydroxyls and have a relatively low reactivity. It is compatible with most polyether polyols and can be blended with other diols, triols and polymer polyols to achieve desirable modifications of product properties. This polyol is acidified with a low level of phosphoric acid, making it suitable for use in isocyanate-terminated prepolymers.

Arcol LG-56 polyol is typically used in the production of solid and microcellular urethane elastomers, seamless and sports flooring, caulks, sealants and crude oil de-emulsifiers. As with any product, the use of Arcol LG-56 polyol in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Product Specifications

Property	Value
Hydroxyl Number, mg KOH/g	56.2–59.0
Water, wt. % (max)	0.05
Acid Number, mg KOH/g (max)	0.05
Color, Pt•Co (max)	50

Typical Properties*

Property	Value
Appearance	Clear, viscous liquid
Specific Gravity at 20°C	1.01
Viscosity at 25°C, cps	480
Flash Point, PMCC, °C	175
Bulk Density, lb/gal	8.43

Storage

Arcol LG-56 polyol is slightly hygroscopic and may absorb water. Containers should be kept tightly closed and protected from contamination with moisture and foreign materials, which can adversely affect product quality.

This polyol can become quite viscous at low temperatures. For ease of handling, storage temperatures between ambient room temperature and 60°C (140°F) are recommended.

Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling Arcol LG-56 polyol. Before working with this product, you must read and become familiar with the available information on its hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets and product labels. Consult your Bayer MaterialScience representative or contact Bayer's Product Safety and Regulatory Affairs Department in Pittsburgh, Pa.

** These items are provided as general information only. They are approximate values and are not part of the product specifications.*

Note: The information contained in this bulletin is current as of September 2003. Please contact Bayer MaterialScience to determine whether this publication has been revised.

Bayer MaterialScience LLC

100 Bayer Road • Pittsburgh, PA 15205-9741 • Phone: 1-800-662-2927 • www.BayerMaterialScienceNAFTA.com

Sales Offices

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Exhibit D

Bayer MaterialScience

Product Information

MULTRANOL 3900

Polyether Polyol

Description

Multranol 3900 polyether polyol is a 4,800-molecular-weight polyoxypropylene triol specially modified with ethylene oxide. The terminal end-groups have a high percentage of primary hydroxyl end-groups, giving it a relatively high rate of reactivity with isocyanates. It is compatible with most polyether polyols and can be blended with other diols, triols, and polymer polyols to achieve desirable modifications of product properties.

Multranol 3900 polyol is used in a broad range of urethane foam and other applications, including sealants, caulks, deck coatings, elastomers, tire fill, and reaction injection molding (RIM). As with any product, the use of Multranol 3900 polyol in a given application must be tested (including but not limited to field testing) in advance by the user to determine suitability.

Product Specifications

Property	Value
Hydroxyl Number, mg KOH/g	33.8–37.2
Water, Wt. % (max)	0.05
Acid Number, mg KOH/g (max)	0.015
Color, Pt•Co (max)	50

Typical Properties*

Property	Value
Appearance	Clear, viscous liquid
Specific Gravity at 25°C	1.02
Viscosity at 25°C, cps	820
Flash Point, PMCC, °C	184
Bulk Density, lb/gal	8.56

Storage

Multranol 3900 polyol is slightly hygroscopic and may absorb water. Containers should be kept tightly closed and protected from contamination with moisture and foreign materials, which can adversely affect product quality.

This polyol can become quite viscous at low temperatures. For ease of handling, storage temperatures between ambient room temperature and 60°C (140°F) are recommended.

Health and Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling Multranol 3900 polyol. Before working with this product, you must read and become familiar with the available information on its hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets and product labels. Consult your Bayer MaterialScience representative or contact the Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

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Note: The information contained in this bulletin is current as of January 2006. Please contact Bayer MaterialScience to determine whether this publication has been revised.

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